

CLAIMS

What is claimed as being new and desired to be protected by LETTERS PATENT of the United States is as follows:

1. An environmental air treatment system to safely and conveniently allow a user to efficiently manage the heating and cooling of a living space comprising, in combination;

a living space comprising walls, ceiling and floor and having an enclosed space within the walls and ceiling, with the living space having a sleeping area and a toilet area and a bathroom area;

a rooftop combination air intake and air exhaust housing having four parallel opposing sides and a lower bottom floor and an upper top, with the sides, top and lower floor forming an internal hollow chamber, with the chamber having a thermal exchange unit housed within the interior of the chamber forming an intake side and an exhaust side, with the housing also having an exhaust opening and an intake opening, with the thermal exchange unit allowing for the utilization of warmed exhaust air used during a heating application to warm the cooler incoming air and the utilization of cool outflowing air used during a cooling application to cool the warmer incoming air;

a plurality of ducts forming a duct work system, with the ducts coupled with the housing and thereby forming a continuous internal hollow pathway within the duct work;

a plurality of duct work registers being located within the walls and ceiling of the living space with the duct work being coupled to the registers and with the registers having an opening and closing mechanism to restrict the passage of air through the register into and out of the duct work;

an air movement fan housing, also known as an air handler flow housing, having a hollow rectangular configuration and fabricated of rigid material with the housing having an intake aperture and an outflow aperture, with the intake aperture being coupled to the duct work which in turn couples the intake aperture to the intake opening of the rooftop air intake housing and the outflow aperture being coupled by the duct work to a plurality of registers located within the living space, the flow housing having contained therein a plurality of components comprising a fan and fan motor and a hot water heat exchange unit and a cold water heat exchange unit and a plurality of pipe connections coupling with the heat exchange unit, with the housing also having an internal drip containment pan with a drain plug to capture and contain condensation and to allow the convenient draining of the pan;

a hot water source from the class of hot water sources comprising an electrically heated water source and a gas heated water source and a solar heated water source and with hot water piping coupled to the hot water source and to a heat exchanger to

serve as an enclosed conduit to allow the passage of heated water into the heat exchanger located within the flow housing;

a cold water source from the class of water sources comprising an electrically cooled water source and a gas cooled water source and a geothermically cooled water source and with cold water piping coupled to the cold water source and to a heat exchanger to serve as an enclosed conduit to allow the passage of cold water into the heat exchanger inside of the flow housing, thereby allowing the heat exchanger to provide a source of heat or cold within the housing;

an electronically controlled thermostat being located within the confines of the living space and positioned to allow the convenient and accurate monitoring of air temperature within the living space;

a plurality of water mixing valves being coupled in-line of the hot and cold water supply pipes, with the mixing valves being coupled electronically to the thermostat, the mixing valves allowing for the control of the amount of heated or cooled water that would be conducted to the heat exchanger within the air handler flow housing;

a plurality of 3-way valves coupled electronically to the thermostat, the valves being located in-line in the hot and cold water piping to allow the bypassing of the heat exchanger within the air handler while continuing to supply hot and cold water to the living space;

a plurality of 2-way actuator valves located in-line of the water piping to the heat exchanger, with the 2-way actuator valve being coupled to the thermostat thereby allowing the supply of hot and cold water to the heat exchanger and the cessation of hot and cold water flow to the heat exchanger within the air handler, the water supply being controlled by the thermostat and each valve being electronically coupled to the thermostat; and

a plurality of fire sprinkler outlets with each being coupled to the cold water source piping in the living space.

2. An environmental air treatment system comprising, in combination;

a living space comprising walls, ceiling and floor and having an enclosed space within said walls and ceiling; a rooftop combination air intake and air exhaust housing having an internal hollow chamber, with a thermal exchange unit housed within the interior of the chamber forming an intake side and an exhaust side, with an exhaust opening and an intake opening;

a plurality of ducts forming a continuous duct work system; a plurality of duct work registers; an air movement fan housing coupled to the duct work and the registers and having contained therein a plurality of components comprising a fan and fan motor and a plurality of heat exchange units and a plurality of pipe connections coupling with the heat exchange unit;

a hot water source coupled to the heat exchanger;
a cold water source coupled to the heat exchanger;
an electronically controlled thermostat; and
a plurality of water mixing valves being coupled in-line of
the hot and cold water supply pipes.

3. An environmental air treatment system as described in
Claim 2 wherein the system further comprises a plurality of hot
and cold water risers which allow the system to be used in a
multiple level structure.

4. An environmental air treatment system as described in
Claim 2 wherein the system further comprises an air treatment
system for a swimming pool and spa area, with the system also
providing a means to warm the pool and spa water.

5. An environmental air treatment system as described in
Claim 2 wherein the system further comprises a plurality of 3-way
valves being coupled electronically to the thermostat, the valves
being located in-line in the hot and cold water piping to allow
the bypassing of the heat exchanger within the air handler while
continuing to supply hot and cold water to the living space.

6. An environmental air treatment system as described in
Claim 2 wherein the system further comprises a plurality 2-way
actuator valves being located in-line of the water piping to the
heat exchanger, with the two-way actuator valve being coupled to
the thermostat and thereby allowing the supply of hot and cold
water to the heat exchanger and the cessation of hot and cold

water flow to the heat exchanger within the air handler, the water supply being controlled by the thermostat and each valve being electronically coupled to the thermostat.

7. An environmental air treatment system as described in Claim 2 wherein the system further comprises a plurality of fire sprinkler outlets being coupled to the cold water supply of the living space.

8. An environmental air treatment system to safely and conveniently allow a user to efficiently manage the heating and cooling of a living space comprising in combination:

a living space comprising walls, ceiling and floor and having an enclosed space within the walls and ceiling, with the living space having a sleeping area and a toilet area and a bathroom area;

a water sprinkler system coupled to the living space, the sprinkler system having a plurality of pipes with sprinkler heads coupled there to, with the sprinkler system being divided into two regions, with a first region being a feed side comprising feed pipes having sprinkler heads coupled there to and a second region being a return side comprising return pipes having sprinkler heads coupled there to;

a feed coupling pipe connecting and coupling each of the feed pipes and a return coupling pipe connecting and coupling each of the return pipes;

a heat pump located within the living space, the heat pump having a feed side and the heat pump having a return side, with the feed side being coupled to a feed pipe and the return side being coupled to a return pipe;

a heat exchange subassembly being located outside of the living space, the heat exchange subassembly having a cooling coil having an inflow side and an outflow side and a fluid pump, the fluid pump having an inflow side and an outflow side, the inflow side of the fluid pump being coupled to the outflow side of the cooling coil and forming a single fluid pathway there through, the inflow end of the cooling coil being coupled to the return coupling pipe and the outflow end of the fluid pump being coupled to the feed coupling pipe; and

a thermostat located within the living space and coupled to the heat pump, the thermostat allowing the control of the heating or cooling of the living space by the heat pump.

9. An environmental air treatment system comprising, in combination:

a living space comprising walls, ceiling and floor and having an enclosed space within said walls and ceiling;

a heat pump comprising a fan and fan motor and at least one heat exchange unit, the heat pump having a fluid pathway contained there in with the fluid pathway having an inflow end and an outflow end;

a feed line water source coupled to the heat pump exchanger inflow end to provide a fluid to the heat pump;

a return line water source coupled to the heat exchanger outflow end to allow the removal of fluid from the heat pump.

10. An environmental air treatment system as described in Claim 9, the system further comprising:

at least one duct forming a continuous duct work system for the diversion of air from the heat pump;

at least one duct work register coupled to the duct and the living space; and

an electronically controlled thermostat.

11. An environmental air treatment system as described in Claim , the cooling coil further comprising an associated water spraying mechanism for effectuating the cooling of the fluid moving through the cooling coil.